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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,965	03/31/2004	Clifford Earl Shamblen	129955/11854 (21635-0122)	8707
31450 7590 09/24/2008 MCNEES WALLACE & NURICK LLC 100 PINE STREET P.O. BOX 1166 HARRISBURG, PA 17108-1166			EXAMINER MCGUTHRY BANKS, TIMA MICHELE	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 09/24/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,965	Applicant(s) SHAMBLEN ET AL.	
	Examiner TIMA M. MCGUTHRY-BANKS	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-23 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-23,29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claim 1 is amended, Claims 17, 20, 23 and 29 are as previously presented, Claims 4, 5, 7-16, 18, 19, 21 and 22 are as originally filed, and Claims 2, 3, 6 and 24-28 are cancelled.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4, 5, 7, 11-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al (US 2002/0005089) in view of Peras (US 3,234,608) and Goecmen et al (US 2002/0003008 A1).

Nagata et al in view Peras is applied as discussed in the office action mailed 9 July 2008 for Claims 1, 7, 11, 13, 15, 16 and 18. Regarding Claim 5, Nagata et al teaches producing slag [0040]. Regarding Claim 12, Nagata et al teaches that charging the compacts to the melting step is from about 5-60 minutes [0046]. Though Nagata et al does not teach reducing in 10 seconds, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B. Regarding Claims 19 and 20, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the iron alloy produced in Nagata et al would be either mechanically worked or post processed, since iron

Art Unit: 1793

alloys are well known in the art to be processed for further use. However, Nagata et al does not disclose the additional limitation of the metallic article being a component of a gas turbine engine as in Claim 1, an alloy having a martensitic steel composition as in Claim 4, adding a metallic alloying element to the initial metallic particle while the initial metallic particle is melted as in Claim 14, adding an alloying element as in Claim 17, heat treating the mechanical article as in Claims 21-23. Regarding Claims 14 and 17, Peras teaches that the added calcium reduces MnO in the slag and improves the quality of the steel (column 5, lines 8-11).

Goecmen et al teaches martensitic-hardenable heat treated steels (abstract) that can be used in gas turbine technology [0004]. Regarding Claim 1, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the alloys produced in Nagata et al could be used as the steel in Goecmen et al, since both Nagata et al teaches producing iron alloys that contain chromium and steel, respectively. Regarding Claim 4, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the alloys produced in Nagata et al could have a martensitic steel composition, since Nagata et al teaches making iron alloys of any desired composition. Regarding Claims 21-23, Goecmen et al teaches a heat treatment process that involves solution annealing, cooling, tempering, cooling, and annealing [0012-0018]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat treat the iron alloy of Nagata et al, since Goecmen et al teaches that heat treatment process allows for a good combination of resistance to heat and ductility [0020].

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al in view of Peras and Goecmen et al.

Art Unit: 1793

Nagata et al teaches a method for manufacturing high purity Fe by reducing iron oxide to more than 90% Fe in a solid state, then melting (abstract). Although heat is used, carbon is required for reduction [0037]; therefore the mechanism is chemical reduction. Since Nagata et al teaches reduction in a solid state, at least some reduction occurs without melting the initial metallic product. The product produced is high purity iron (abstract) or iron alloy, metallic nickel or alloys thereof [0065]. Nagata et al further teaches furnishing at least two nonmetallic precursors, including iron and nickel oxides [0065], therefore the base metal and one other metallic element are added. While Nagata et al does not specifically teach that a nickel-base, iron-base, or iron-nickel base alloy is formed; such would be the case when iron oxide is at least partially substituted with nickel [0065] in the disclosed process. Nagata et al teaches separation and discharge of the molten product from the furnace [0061]. However, Nagata et al does not disclose solidifying to produce a cast ingot, converting the cast ingot into a billet, fabricating the billet into the metallic article, or heat treating the metallic article as in Claim 29.

Regarding solidifying the produce a cast ingot, converting the cast ingot into a billet, fabricating the billet into the metallic article, Peras teaches a method of continuous casting direct reduced iron ores as consumable electrodes to remove contaminates including FeO resulting from incomplete reactions in the reduction process, producing marketable forms such as billets (column 1, line 1 to column 2, line 17). The molten metal is received into a pouring ladle, form which the metal jet flows to a cooled copper ingot mold (column 5, lines 56-61). The solidified metal can be extracted in the form of bars, slabs, billets or sections (lines 61 and 62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the

Art Unit: 1793

melting refining method of Peras to melt the reduced iron and iron/nickel intermediate products of Nagata et al, since Peras teaches removing contaminates and producing marketable billets.

Regarding heat treating, Goecmen et al teaches martensitic-hardenable heat treated steels (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat treat the iron alloy of Nagata et al, since Goecmen et al teaches that heat treatment process allows for a good combination of resistance to heat and ductility [0020].

Response to Arguments

Applicant's arguments with respect to Claim 29 and the limitation of cancelled Claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 1793

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
1793

/T. M. M./
Examiner, Art Unit 1793
24 September 2008